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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/823,299

03/30/2001

Rahul Magoon

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07/14/2004

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP  
100 GALLERIA PARKWAY, NW  
STE 1750  
ATLANTA, GA 30339-5948

EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT

PAPER NUMBER

2634

4

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/823,299

Applicant(s)

MAGOON ET AL.

Examiner

Lawrence B Williams

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 25-28 is/are allowed.  
6) ☒ Claim(s) 1-9 and 13-21 is/are rejected.  
7) ☒ Claim(s) 10-12, 22-24 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: On page 7, lines 23-25, applicant uses the reference numeral 426 to represent both the I and Q quadrature signals. Appropriate correction is required.
2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 13-20 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Camp, Jr. et al. (US Patent 6, 621,876 B2).

(1) With regard to claim 1, Camp, Jr. et al. discloses in Figs. 8A- 9B, a polyphase filter comprising a first phase splitting filter (67) that produces a first output (To 82), a second phase splitting filter (67) that produces a second output (To 82), a first variable resistance (Fig. 9A)

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connected across the first output, and circuitry capable of detecting the phase of the outputs produced by the first and second outputs, and circuitry capable of adjusting the first variable resistance (col. 10, lines 1-11) to produce a desired phase difference between the first output and the second output (col. 5, lines 52-64).

(2) With regard to claim 2, Camp, Jr. et al. also discloses in Figs. 8A- 9B, wherein the first output and the second output are single-ended outputs.

(3) With regard to claim 3, Camp, Jr. et al. also discloses wherein the first and the second outputs are differential outputs (col. 10, lines 1-19).

(4) With regard to claim 4, Camp, Jr. et al. also discloses Figs. 8A- 9B, the filter comprising a second variable resistance connected across the second output.

(5) With regard to claim 5, Camp, Jr. et al. also discloses wherein the first variable resistance and the second variable resistances include transistors (col. 9, line 55- col. 10, line 11).

(6) With regard to claim 6, though Camp, Jr. et al. does not disclose the transistors including at least one MOSFET transistor operating in the linear range, it would be inherent to do since one skilled in the art would be aware that power dissipation is zero during operation in the linear range.

(7) With regard to claim 7, Camp, Jr. et al. also discloses wherein the first variable resistance and the second variable resistance include a bipolar differential pair (col. 9, line 55- col. 10, line 11).

(8) With regard to claim 8, Camp, Jr. et al. also discloses wherein the first variable resistance and the second variable resistance include a digitally switchable resistance pair (col. 9, line 55- col. 10, line 11).

- (9) With regard to claim 13, claim 13 inherits all limitations of claim 1, above.
- (10) With regard to claim 14, claim 14 inherits all limitations of claims 2 and 13 above.
- (11) With regard to claim 15, claim 15 inherits all limitations of claims 3 and 13 above.
- (12) With regard to claim 16, claim 16 inherits all limitations of claims 4 and 13 above.
- (13) With regard to claim 17, claim 17 inherits all limitations of claims 5 and 16 above.
- (14) With regard to claim 18, claim 18 inherits all limitations of claims 6 and 17 above.
- (15) With regard to claim 19, claim 19 inherits all limitations of claims 7 and 16 above.
- (16) With regard to claim 20, claim 20 inherits all limitations of claims 8 and 16 above.

***Claim Rejections - 35 USC § 103***

5. Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Camp, Jr. et al. (US Patent 6,621,876 B2) as applied to claims 1 and 13 above, and further in view of Vinn et al. (US Patent 6,441,682 B1).

(1) With regard to claim 9, as noted above, Camp Jr. et al. discloses all limitations of claim 1 above. He does not however disclose wherein the circuitry capable of detecting the phase of the outputs includes a phase detector, an integrator and a differential amplifier.

However, Vinn et al. teaches an active polyphase filter wherein the circuitry capable of detecting the phase of the outputs includes a phase detector, an integrator and a differential amplifier (col. 14, lines 10-34).

One skilled in the art would have clearly recognized that a polyphase filter wherein the circuitry capable of detecting the phase of the outputs includes a phase detector, an integrator and a differential is a well-known technique introduced in many references. Therefore it would have

been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Vinn et al. to modify the invention of Camp Jr. et al. as a method of improving the implementation of a polyphase filter (col. 7, lines 22-35; col. 11, line 62- col. 12, line 12).

(2) With regard to claim 21, claim 21 inherits all limitations of claim 9, above.

***Allowable Subject Matter***

6. Claims 25-28 are allowed.

7. Claims 10-12, 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Claims 25 and 28 disclose a communication system and method, respectively for obtaining accurate quadrature separation of phase components. An exhaustive search of prior art records fail to disclose a method or system for “splitting the local oscillator frequency into two signals having a predetermined phase difference to produce a first output and second output” along with the remaining limitations of both claims.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 703-305-6969. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw  
July 6, 2004

  
**STEPHEN CHIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**